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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,446	11/08/2001	Wolfgang Schneider	VAW-5	5083

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PROSKAUER ROSE LLP
PATENT DEPARTMENT
1585 BROADWAY
NEW YORK, NY 10036-8299

EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,446

Applicant(s)

SCHNEIDER ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/29/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-18 and 21 - 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 12-18 and 21-24 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 12, 13, 21, 24 and 22(12,13,19-21) {Claims 22 as it depends from claims 12, 13, and 19-21} and 23 (12,13,19-21) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP(357) in view of Gesing et al (US 4,790,873).

JP teaches a device for filtering and adding grain refining material to metal melt comprising a first filter, a grain refining material feed downstream of the first filter and a second filter downstream of the first filter as in claim 12 (see abstract and specification); with the second filter a porous filter medium. However, JP-357 does not teach the second filter as a deep-bed filter. Gesing 873 teaches a deep bed filter as the second filter (see fig 7-9). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Gesing in the teaching of JP for the device for a metal melt because it would help trap and hold metal wettable inclusions, inline treatment, and for continuous operation (Gesing col 1 lines 7-19, col 4 lines 16-25, col 7 lines 1-10).

First filter can be a cake filter as in claim 13 (see specification)..

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JP teaches a method of filtering, by filtering through a first filter, adding a grain refiner and then filtering through a second filter as in claim 24 (see abstract and specification)

JP teaches all the limitations of claim 12. Instant claims add further limitations which are not taught by JP, but taught by Gesing as follows:

Second filter is loosely filled as in claim 21 (see fig 7-9). Gesing teaches electrically heated filter as in claims 22(12,13, 19-21) and 23 (12,13, 19-21) (col 7 lines 7-10).

2. Claims 14-17, 22 (14-17) and 23 (14-17) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP (357) in view of Gesing et al (US 4,790,870) as in claim 12 above and further in view of Dore (US 4,113,241).

Claims 14-17 add further limitations of first filter being a ceramic foam plate, plate thickness and that it is being sintered. Dore teaches a sintered ceramic foam filter plate for metal melt filtration (abstract, col 6 lines 10-20). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Dore in the teaching of JP(357) in view of Gesing for more efficient filtration (Dore col 6 lines 21-34).

Gesing in view of Dore is not specific on the thicknesses of the filter elements as in instant claims 15 and 16 . However, it would be obvious to one of ordinary skill in the art at the time of invention to provide sufficient thickness to have enough strength without compromising on pressure drop. [Discovery of an optimum value of a result

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effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955)].

Gesing teaches electrically heated filter as in claims 22(14-17) and 23 (14-17) (col 7 lines 7-10).

3. Claims 18, 22 (18) and 23 (18) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP(357) in view of Gesing et al (US 4,790,870) as in claim 12 above and further in view of Walker (US4,834,876).

JP in view of Gesing teaches electrically heated filter (Gesing: col 7 lines 7-10) as in claims 22 (18) and 23 (18), but does not teach a CVD deposited material on the filters as in instant claim 18. Walker (876) teaches heated filter elements for metal melt filtration, with CVD metal deposition for resistance heating of the element (col 2 lines 12-15). It would be obvious to one of ordinary skill in the art at the time of invention to use the teachings of Walker (876) to configure the filter elements to be heated for the purpose of heating the filters as taught by Gesing.

Response to Arguments

Applicant's arguments filed 4/29/04 have been fully considered but they are not persuasive.

Applicants' argument is that the deficiencies of JP'357 are not remedied by US'873 because JP'357 teaches using "a cheap and therefore disposable plate-shape

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filter" at the second stage because the second stage filter, being downstream of the graining refining feed, may have a tendency to get clogged quickly, and the skilled artisan would not be motivated to use "an expensive deep-bed filter as the second filter" like US-873 teaches, but rather would be motivated, as in JP-357, to employ a cheap disposable plate-shape filter for the second filter under those circumstances. This argument would be true if one of ordinary skill in the art would have no motivation to look further, and would be satisfied with the teachings of JP-357. However, one of ordinary skill in the art looking for filter for an in-line treatment of molten Al flowing in a transfer trough, and particularly for continuous operation, may not be satisfied with a cheap plate-shape filter because of the difficulties associated with replacing the filter frequently (see col 1 lines 7-19 and col 7 lines 1-10 of US-873). Moreover, US-873 teaches (in col 2 lines 44-57) "Borides may be added as grain refiners", and "There appears to be a tendency for the larger non-wetted oxide particles to become coated with the smaller wetted boride particles, forming mixed clusters which are readily wetted by Al", implying that the grain refiners may make the non-wettable particles wettable, thereby, providing the motivation to have the first filter for removing non-wettable, and adding the grain refiners after the first filter. US-873 teaches further "the key to the ... use of a filter of metal wettable material" in col 2 line 58 – col 4 line 25, with the advantages of the bed of granules as the second filter in col 4 lines 16-25. Therefore, contrary to applicants' arguments, the motivations to combine the references in the US-873 patent overrides any discouragement inferred by one of ordinary skill in the art from

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the JP-357 reference for using anything other than a cheap plate-shape filter as the second filter.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


W.L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700